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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,513	09/09/2003	Yuhong Wang	58970.010500	1783

34018 7590 03/20/2006

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CHICAGO, IL 60601-1732

EXAMINER

GATES, ERIC ANDREW

ART UNIT

PAPER NUMBER

3722

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/658,513	WANG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eric A. Gates	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This office action is in response to Applicant's amendment filed on 10 January 2006.

#### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 156. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Nygard (U.S. Patent 6,857,832).

5. Regarding claim 1, Nygard discloses a twist drill for forming holes in or through a workpiece, having a longitudinal axis around which the twist drill is rotated and in the direction of which the twist drill is advanced into the workpiece, and two transverse axes disposed perpendicular to each other and to the longitudinal axis, comprising: a shank (not shown but inherent), for enabling the twist drill to be mounted to a driving device; a body (not referenced) emanating from, and coaxial with the shank, the body having a radius; at least one flute (not labeled, see Figure 2) extending helically along the body; at least one land (not labeled, see Figure 2) disposed adjacent to the at least one flute; and a point structure 2, formed on an end of the body distal to the shank, the point structure being generally in the form of a brad point having an extreme tip through which the longitudinal axis of the drill passes, the point structure further having two spur structures 3 on opposite sides thereof; a cutting lip 3 on a leading edge of each of the spur structures, the drill further including planar axial relief surfaces 10b on trailing surfaces of the lands, the axial relief surfaces being separated from the leading edges of the spur structures by one or more planar cutting edge surfaces 10a, wherein the axial relief surfaces are disposed at a separate, substantially steeper angle, relative to a

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plane perpendicular to the longitudinal axis of the twist drill, than the one or more planar cutting edge surfaces.

6. Regarding claim 2, Nygard discloses wherein the point 2 comprises a first radially outwardly disposed portion (portion in the plane defined by angle alpha) of the at least one land angling inwardly and axially toward the shank, to a position between a peripheral portion of the body, and the longitudinal axis and a second, radially inwardly disposed portion (portion in the plane defined by angle beta) of the at least one land, angling inwardly and axially away from the shank and toward the central point structure.

7. Regarding claim 4, Nygard discloses wherein the second, radially inwardly disposed portion of the at least one land is defined at least in part by a point angle beta and an angle (not referenced but inherent) which represents an axial separation between the central point structure and radially outer portions of the at least one land, wherein beta is between 80 and 100 degrees, inclusive; and the (not referenced but inherent) angle measures approximately 140 degrees on Figure 2 and 153 degrees on Figure 4 (falls within the 140 to 170 degrees for this claim).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nygard in view of Crisp (U.S Patent 2,769,355).

10. Regarding claim 5, Nygard discloses the at least one flute terminating in a cutting lip disposed proximate the point; the at least one flute having a sectional configuration, in a plane perpendicular to the longitudinal axis, incorporating a leading edge, a trailing edge, a straight surface extending inwardly from the leading edge, at least to a position coplanar with a plane passing perpendicularly through the straight surface to the longitudinal axis, and a first concave curved portion, extending from an inward end of the straight surface. Nygard does not disclose a second concave curved portion, extending inwardly from the trailing toward an outer edge region of the first concave curved portion, and a ridge formed by the intersection of the outer edge region of the first concave curved portion and an inner edge region of the second concave curved portion. Crisp discloses a fluted drill that has a first concave curved portion 15 and a second concave curved portion 16 that intersect at a ridge 11 for the purpose of breaking up the cut chips into small pieces. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the drill of Nygard with the concave flute portions and ridge portion of Crisp in order to have a brad type drill that makes small chips during drilling.

11. Regarding claim 6, the modified invention of Nygard discloses the invention substantially as claimed.

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12. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nygard in view of Crisp as applied to claims 5 and 6 above, and further in view of Guehring et al. (U.S Patent 6,213,692).

13. Regarding claim 7, the modified invention of Nygard discloses the invention substantially as claimed, except Nygard does not disclose the ridge is in the form of a rounded bump. Guehring et al. teaches the use of grooves 18 on a drill that form ridges in the shape of rounded bumps for the purpose of breaking up the cut chips into small pieces. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the modified drill of Nygard with the rounded bumps of Guehring in order to have a brad type drill that makes small chips during drilling without having stress concentrations at the end of the ridges.

14. Regarding claims 8-11, the modified inventions of Nygard in claims 6 and 7 disclose the inventions substantially as claimed.

### ***Response to Arguments***

15. Applicant is correct in that the Examiner inadvertently referred to the axial relief surface in claim 1 as "angle alpha" instead of "10b". Examiner apologizes for the error.

16. Applicant's remaining arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

17. Applicant's submission that the disclosure of Nygard is inconsistent such that a complete and clear idea of the drill tip structure is not persuasive. While it is agreed that

line V-V is not shown in figure 3, this figure does show the relation between surfaces 10a and 10b.

18. For the reasons as set forth above, the rejections are maintained.

### ***Conclusion***

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric A. Gates whose telephone number is 571-272-5498. The examiner can normally be reached on Monday-Thursday 7:45-6:15.



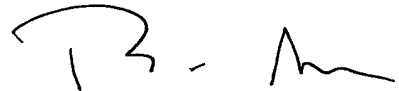
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EAG  
13 March 2006



BOYER D. ASHLEY  
SUPERVISORY PATENT EXAMINER

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